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ABSTRACT

The literature on the emotional adjustment of intellectually gifted adolescents and the literature on adjustment of students admitted at younger than normal ages into college are reviewed. The review on gifted adolescents is divided into the following sections: background (acceleration in elementary and secondary grades); personality and adjustment of gifted adolescents; objective personality measures; projective measures of adjustment; miscellaneous measures of adjustment. The review on adjustment of accelerated students in college is organized into the following sections: academic performance; socio-emotional adjustment; the Fund for the Advancement of Education Study (1957); the study of L. Pollins (1983); the study of N. Robinson and P. Janos; and the study of D. Keating, S. Wiegand, and L. Fox. The research indicates that younger-than-average students have few adjustment problems in college and that, for the most part, those problems are overcome with increasing maturity. The lack of a theoretical model and the moderate methodological quality of the research suggest the need for rigorous hypothesis testing and inductive theory building. Questions (such as possible sex differences in college adjustment) are posed for further research. (DB)

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The Acceleration into College and Emotional Adjustment of the Academically Gifted Adolescent: A Synthesis and Critique of Recent Literature

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Running Head: EMOTIONAL ADJUSTMENT AND ACCELERATION INTO COLLEGE

Abstract

Both manual and computer bibliographic searches were accomplished as part of an exhaustive review of research dealing with the socio-emotional adjustment of intellectually gifted adolescents and the adjustment of rapid accelerants into college. This review summarizes and synthesizes both areas of research. A critique of research methodologies is accomplished and suggestions are made for the improvement of future research.

Previous data indicate that, although gifted adolescents appear to be generally well-adjusted and accelerated students appear to adapt well to the college environment, casualties do occur. Recommendations are made and plans described for effecting rigorous research concerning accelerants' adjustment to college.

Submitted: March 7, 1986

The Acceleration into College and Emotional Adjustment of the Academically Gifted Adolescent: A Synthesis and Critique of Recent Literature

Background

The effects of rapid acceleration through elementary and secondary school (defined in this review as at least two grades) into college have been discussed for decades. Many opinion leaders (e.g., Edelston, 1950; Hall, 1958) have said that rapid acceleration can have deleterious effects on the psychological well-being as well as the academic achievements of the intellectually gifted young accelerants thrust into a social setting, often without support, for which they are not emotionally prepared. Others (e.g., Daurio, 1979; Pollins, 1983) argue that such students are poised and mature past their years -- stifled in the traditional academic environment -- and that acceleration is a means finally to place them in a challenging situation where they will have more opportunity to deal with intellectual and emotional peers, even though they may be disadvantaged because of their relative lack of experience.

Daurio (1979) attributed the arguments against acceleration to two factors: sensationalistic reactions to the misfortunes of William James Sidis (also see Montour, 1977) and the negative stereotypes society has about intellectually gifted youth. Daurio (1979) and Pollins (1983) concluded that, while some parents, educators, and administrators recommend against acceleration (Edelston, 1950; Hall, 1958), no data exists that has demonstrated any actual adverse effects attributable to students moving at a faster than average pace through the school system. These authors

both feel that these anti-acceleration recommendations are based on emotional arguments and, possibly, the feelings that intellectually advanced students have social and/or academic adjustment difficulties directly traceable to their precocity.

As in all social science, the truth is not black and white. Individual differences between accelerants and how they deal with the academic stressors as well as the social milieu encountered will determine to a large extent whether they can benefit from or become casualties of rapid acceleration.

The process of adjustment to college life for college students of average age of entry is not well understood. For rapid accelerants, the process of adjustment is not understood at all. While some research has been performed with college students in general regarding the socialization process (e.g. Newcomb, 1961), the emphasis has not been on relatively immediate adjustment but rather on long-term acclimation and achievement. Recently, much research (e.g. Keicolt-Glaser et al., 1984) has looked at the short-term effects of adjustment in institutions of higher learning, but has focused attention only on the effects of academic stressors and the adaptive mechanisms brought to bear by students on these stressors. Also, much of this research revolves around physiological measurements and discounts almost entirely individual differences, personality variables, and longer-term outcomes.

The literature concerning the effects of rapid acceleration is similar in that the emphasis has been on long-term adjustment and outcomes. Research efforts in this area have consisted mainly of longitudinal studies assessing global measures of reported social and emotional adjustment. None of the studies have focused on the dynamic process of adaption

encompassing coping ability, behavior change, and/or personality change. Further, according to Edelston (1950) and Hall (1958), we should suspect that the academic and social stressors faced by these very young students may prove more problematic for them to overcome than for their older, same-grade counterparts.

While research regarding the adjustment to college of rapid accelerants is quite sparse, investigations of precocious students' general social and emotional characteristics are only slightly more prevalent. Yet this information, however limited, serves as one input in the debate concerning the effects of moderate or rapid acceleration on student well-being. The purpose of this review is to summarize existing knowledge about the personality of gifted adolescents and integrate this information with research on the acceleration of intellectually talented students into college. Since both the rigors of higher education and adolescence itself may function as powerful stressors, it is crucial for the future of these gifted accelerants that the ability to successfully predict and thus prevent periods of prolonged, debilitating stress be developed. Information gleaned from the synthesis will be utilized to suggest directions for future research which may lead to successful prevention programs in institutions of higher education where early entry of academically gifted students is encouraged.

Personality and Adjustment of Gifted Adolescents

Despite the stereotypes of gifted students noted by Daurio (1979), academically talented adolescents are not, by definition, maladjusted. In general, extant research on academically gifted students indicates few adjustment problems. While the results of this research are difficult to evaluate because of differing definitions of giftedness, eleven individual

research efforts found gifted adolescents to be as well as or better adjusted than their counterparts of average ability. However, four groups of investigators (Chambers & Dusseault, 1972; Mason, Adams, & Blood, 1966; Pandey, 1977; Willings, 1984) report the contrary. Outcome variables demonstrating equal or superior adjustment used in the studies have included various objective personality measurements like the CPI or MMPI (Hogan & Weiss, 1974; Kennedy, 1960, 1962; Lessinger & Martinson, 1961; Tomlinson-Keasey & Smith-Winberry, 1983; Warren & Heist, 1960; Weiss, Haier, & Keating, 1974; Werner & Bachtold, 1969); projective techniques such as personal essays (Strang, 1956) and incomplete sentence completion tasks (Kennedy, 1960); measures of personal values (Kennedy, 1960; Warren & Heist, 1960); scales specifically oriented toward self-concept (Tidwell, 1980); and questionnaires gauging weekly activity (Tidwell, 1980) and extracurricular practices (Pollins, 1983). Chambers and Dusseault (1972), Mason, Adams, and Blood (1966), and Pandey (1977), who report some degree of maladjustment among academically gifted students, emphasized objective personality measures. Although the quality of this line of research varies greatly (e.g., lack of comparison groups, single rater content analyses), the weight of evidence leads one to conclude that gifted students have no more (and possibly fewer) socio-emotional difficulties than their peers of average intelligence and academic capability.

This section deals with fifteen studies conducted since the mid-1950s that empirically examined the personalities and adjustment patterns of gifted adolescents. Since the studies were designed to obtain specific answers to specific questions and since all were carried out in natural settings, the research designs employed often lacked methodological rigor. A critique of these past efforts is included along with the descriptions of

the studies, which are divided into four broad sections by the major type of dependent measure employed: objective personality tests such as the CPI and MMPI; projective measures of adjustment; assessments of personal values such as the Study of Values; and miscellaneous measures of adjustment. A summary of these studies is provided in Table 1.

INSERT TABLE 1 ABOUT HERE

Objective Personality Measures

Of the eleven studies using primarily objective personality measures to study the adjustment of gifted adolescents, six chose the California Psychological Inventory (CPI) as their main dependent measure. Two other studies employed the Minnesota Multiphasic Personality Inventory (MMPI) while three additional research efforts used either the Omnibus Personality Inventory or the High School Personality Questionnaire. Nine of these reports concluded that gifted adolescents evidence either adequate or superior adjustment patterns (Hogan & Weiss, 1974; Karnes, Chauvin, & Trant, 1985; Kennedy, 1960, 1962; Lessinger & Martinson, 1961; Tomlinson-Keasey & Smith-Winberry, 1983; Warren & Heist, 1960; Weiss, Haier, & Keating, 1974; Werner & Bachtold, 1969), while only two studies claimed that gifted adolescents experience less than adequate personality adjustment (Chambers & Dusseault, 1972; Mason, Adams, & Blood, 1966).

Four of the six studies using the CPI (Hogan & Weiss, 1974; Lessinger & Martinson, 1961; Tomlinson-Keasey & Smith-Winberry, 1983; Weiss, Haier, & Keating, 1974) concluded that gifted adolescents/college students displayed adequate if not superior adjustment when compared to students of average intelligence. Two other research efforts (Chambers &

Dusseault, 1972; Mason, Adams, & Blood, 1966) maintained that gifted college students were less well adjusted than their counterparts of average intelligence. However, the methodological difficulties with all of these studies can only lead to the tentative conclusion that gifted students are not maladjusted on the whole and appear at least as well adjusted as same-aged comparison groups.

Specifically, Lessinger and Martinson (1961) discovered that both gifted male and female samples had much higher profile elevations across 18 scales of the CPI than did the samples of males and females of average intelligence, indicating that gifted adolescents were by far more mature and better adjusted than students of average intelligence. Weiss, Haier, and Keating (1974) found that gifted students evidenced the same profile pattern relative to comparison students of average intelligence as did Lessinger and Martinson's gifted samples and therefore concurred that the maturity level and adjustment patterns of gifted eighth graders are more comparable to those of high school and college students than to those of their same-aged peers. Hogan and Weiss (1974) maintained that the major points of divergence in personality between Phi Beta Kappans and comparison groups revolved around issues of responsibility, socialization, and creativity. While the Phi Beta Kappans were characterized by a generally good level of adjustment, they scored higher than other students on the Responsibility, Socialization, Self-control, and Achievement via Comformance scales of the CPI, indicating a "...stable, pragmatic, and task-oriented..." group who "...lived in harmony with the rules and conventions of society (p. 148)." Tomlinson-Keasey and Smith-Winberry (1983) also used the CPI to examine not only the different personality profiles of gifted and non-gifted college students but possible differences

within the gifted sample as well. No differences in personality were evident between three groups of gifted students with different educational backgrounds. However, gifted females displayed a better adjustment pattern than did females of average intelligence, while gifted males showed a poorer pattern of adjustment than did males of average intelligence. No other study, however, has duplicated this pattern of sex differences.

Mason, Adams, and Blood (1966) were the first group to report that gifted college students were less well adjusted than their age peers of average intelligence. Unfortunately, the interpretation of these results is highly subjective. Although Mason et al. concluded that gifted students are less well adjusted than a comparison group, an equally arguable conclusion is that the gifted students in this study were individualistic, creative, and adaptive and that Mason et al.'s conclusions appear to be based on a rigid and conventional view of adjustment. Chambers and Dusseault (1972) concurred with Mason et al. and stated that gifted college students manifested a lower level of adjustment than average college students. The authors maintained that "...significant differences in personality factors were found in a large number of CPI scales (p. 527)." Unfortunately, no data were presented to document this contention.

Two studies using the MMPI as the major dependent measure (Kennedy, 1960, 1962) found no evidence of maladjustment in gifted adolescents. Kennedy (1960) reported that his subjects scored relatively highly on Lie (61) and K (57) scales, indicating that the students wanted to be seen in a good light but no evidence of psychopathology existed on the group profile. Kennedy's (1962) second descriptive report on the personality of gifted adolescents also used the MMPI and also provided no direct comparison group. Males scored highest on the Mf (66) and Hy

(60) scales, indicating advanced intellectual capabilities, a lack of concern for the traditional male role and a possible tendency toward naivete and self-centeredness (Greene, 1980). Again, no evidence of psychopathology was evident for the group profiles of either males or females.

While the major work in the area of gifted adolescents' personality description has been accomplished with the CPI and MMPI, two other instruments have also been used. Warren and Heist (1960) used the Omnibus Personality Inventory (OPI) while Werner and Bachtold (1969) and Karnes et al. (1985) used the High School Personality Questionnaire (HSPQ). Warren and Heist's results corroborate those of Lessinger and Martinson (1961) and the female group in Tomlinson-Keasey and Smith-Winberry's (1983) study in that gifted college freshmen showed less evidence of maladjustment than did freshmen of average intelligence. Warren and Heist described their gifted sample as less authoritarian, more mature, and more imaginative than normal college freshmen. Werner and Bachtold (1969) also reached the conclusion that gifted students were better adjusted than non-gifted students. They described gifted males as more intelligent, dominant, venturesome, individualistic, self-assured, and self-disciplined than male normative students. Gifted females were seen as more intelligent, enthusiastic, non-conforming, and individualistic than the female normative sample. In Karnes, Chauvin, & Trant's (1985) study, the intellectually gifted sample was found to have a higher LPS (leadership potential) score than the talented sample while the talented sample had a higher Creativity score than the gifted sample. Several additional differences between the groups were observed on the various factors of the HSPQ. The authors concluded that, "Intellectually gifted students were characterized as excitable, assertive, enthusiastic, and relaxed or

composed. Talented students were characterized as tender-minded, reflective, internally restrained, self-assured but somewhat tense and driven (p. 126)."

In summary, the results from these eleven studies lend empirical support to the notion that gifted adolescents are not maladjusted. In fact, four of the eight studies that compared gifted and non-gifted students concluded that gifted students are more mature and better adjusted (Lessinger & Martinson, 1961; Warren & Heist, 1960; Weiss, Haier, & Keating, 1974; Werner & Bachtold, 1969). Tomlinson-Keasey and Smith-Winberry (1983) reported differential adjustment patterns of gifted students depending on their gender. Kennedy (1960, 1962), though using no immediate comparison groups, found no evidence of psychopathology in gifted adolescents. Two studies maintained that gifted college students were less well adjusted than college students of average intelligence (Chambers & Dusseault, 1972; Mason, Adams, & Blood, 1966).

Unfortunately, the eleven studies summarized above are replete with methodological problems that make interpretation of their conclusions quite tentative (see Table 1 for a summary of critical comments). Several studies were concerned only with the description of gifted students and failed to use any comparison groups of non-gifted adolescents (Karnes et al., 1985; Kennedy, 1960, 1962). Others used large national normative samples as comparison groups and did not include local or temporally related comparisons (Chambers & Dusseault, 1972; Mason, Adams, & Blood, 1966; Weiss, Haier, & Keating, 1974; Werner & Bachtold, 1969). Another problem with some studies was the use of statistical techniques (e.g., multiple t-tests) that maximized the probability of finding significant results (Karnes et al., 1985; Mason, Adams, & Blood, 1966; Weiss, Haier,

& Keating, 1974; Werner & Bachtold, 1969). Three papers provided inadequate tabular information which made a full examination of their findings impossible (Chambers & Dusseault, 1972; Tomlinson-Keasey & Smith-Winberry, 1983; Werner & Bachtold, 1969). In addition, three studies reported no tests of statistical significance, even though "significant" or "large" differences were discussed (Chambers & Dusseault, 1972; Lessinger & Martinson, 1961; Warren & Heist, 1960).

Another major problem with this literature is the lack of standard criteria for giftedness. Some studies applied rigorous multiple criteria, (Weiss, Haier, & Keating, 1974) while others classified students as gifted on the basis of liberal (Chambers & Dusseault, 1972; Mason, Adams, & Blood, 1966), non-specified (Lessinger & Martinson, 1961), or ambiguous (Warren & Heist, 1960) criteria. Finally, almost every study that used the CPI or MMPI plotted or presented group means on the various scales of these tests, obscuring the possibility that some individual students had poor adjustment patterns. In addition, descriptive phrases from the mean profile were often used to describe the sample. As Butcher and Tellegen (1978) point out, when group means are presented on personality measures, it is conceivable that no one person in the sample has a profile similar to the group mean. Therefore, to describe a sample with descriptive phrases gleaned from the mean profile (e.g., Hogan & Weiss, 1974; Karnes et al., 1985; Weiss, Haier, & Keating, 1974; Werner & Bachtold, 1969) may be a misleading practice.

Projective Measures of Adjustment

Three studies (Kennedy, 1960; Strang, 1956; and Mason, Adams, & Blood, 1966) used projective assessment devices to gauge the adjustment patterns of gifted adolescents. Strang's students wrote essays concerning

their perceptions of "growing up"; Kennedy used the Kell-Hoeflin Incomplete Sentence Blank (Hoeflin & Kell, 1959) to assess perceptions of family; and, Mason et al., (1966) administered the W-A-Y (Who Are You?) device to students as a measure of self-perception.

The results from these various projective techniques revealed that gifted adolescents, on the whole, were concerned with higher order, abstract issues (Mason et al., 1966; Strang, 1956), were well-adjusted (Strang, 1956), and had fairly negative views of family life (Kennedy, 1960).

Although some of the deficiencies of these studies have been documented previously, additional problematic issues arise when projective assessment techniques are used in combination with less than adequate research methodologies. For instance, Strang's (1956) content analysis of student essays was accomplished by only one person. Even if this person was blind to experimental hypotheses, problems such as lack of inter-rater reliability make Strang's conclusions difficult to evaluate. Also, while Strang's essays and Mason et al.'s W-A-Y technique are interesting approaches, the results of these techniques are subject to the same limitations to internal and external validity as are results from any projective device. In sum, the deficits in this small body of research preclude any concrete conclusions based on derived results.

Assessment of Values

Two research reports (Kennedy, 1960; Warren & Heist, 1960) have incorporated the Allport-Vernon-Lindzey (1951) Study of Values (SOV) into their assessment packages in attempts to describe the importance of various values to gifted students. Both Kennedy's and Warren and Heist's gifted samples scored highest on the Theoretical and lowest on the Social scale of the SOV. Both samples seemed to be characterized by more

interest in abstract, intellectual issues than in social interactions and relationships. Warren and Heist (1960) reported, in addition, that both gifted males and females scored higher on Theoretical and Religious scales than did students of average intelligence. It is worth noting in this regard that Warren and Heist's (1960) conclusions based on the SOV data seem in conflict with not only their own Omnibus Personality Inventory data which indicated that gifted males appeared more socially inclined than non-gifted males, but also the results of others (e.g., Strang, 1956) who reported that both gifted and non-gifted adolescents had the same degree of social inclination.

As mentioned previously, Kennedy's (1960) report is difficult to evaluate because he did not include a comparison group of non-gifted students in his design. Although Warren and Heist (1960) included three comparison groups, they reported no statistical tests to validate group differences. Still, given the concordance in the results of these two studies, a tentative conclusion that the SOV will result in profiles of gifted students indicating relatively high theoretical and relatively low social inclinations seems warranted.

Miscellaneous Measures of Adjustment

Three additional studies using various adjustment measures and self-esteem inventories (Pandey, 1977; Tidwell, 1980; Willings, 1984) complete this review of empirical research dealing with the emotional well-being of gifted adolescents. Two of these studies (Pandey, 1977; Willings, 1984) concluded that gifted adolescents experience significant adjustment problems relative to students of average intelligence while the other report (Tidwell, 1980) maintains that gifted adolescents have high self-esteem and adequate adjustment. As was the case with previous

research, gross deficiencies in two of these reports (Pandey, 1977; Willings, 1984) and the lack of a comparison group in the other (Tidwell, 1980) greatly reduce our ability to assess the generalizability and import of these three studies.

There are numerous methodological problems within these three studies. Tidwell's (1980) report, although carefully executed, did not include a comparison group of non-gifted students other than occasional national normative samples. Pandey (1977) used an unreferenced, obscure adjustment inventory, reported no specific differential criteria for giftedness and non-giftedness, mentioned that 84% of gifted students and 94% of non-gifted students required guidance with no information as to how this conclusion was derived, and listed data in tabular form that, if not actually incorrect, is extremely confusing. Willings (1984) assessed a very small sample of gifted students, never reported what instruments were used to gather information, failed to describe his gifted sample in terms of the WAIS IQ scores used to classify them, and used ambiguous statistical techniques with liberal cutoffs for statistical significance ($p = .10$). Thus, the results from the Pandey (1979) and Willings (1984) studies must be viewed with considerable scepticism.

Summary

The body of research that surveys the psycho-social adjustment of gifted adolescents, though generally weak in research methodology, leads to the conclusion that these students, both in high school and college, suffer no more adjustment difficulties than do non-gifted students. Ten of the fifteen studies reviewed maintained that gifted adolescents manifest either adequate or excellent adjustment. The remaining four studies, three of which are seriously flawed (Chambers & Dusseault, 1972; Pandey,

1977; Willings, 1984), countered that gifted adolescents have relatively lower levels of emotional adjustment compared to non-gifted students. Of interest with regard to the upcoming review of acceleration into college is the fact that the majority of studies reporting relatively poor adjustment of gifted adolescents dealt with college students. Whether this fact is a function of the additional stresses of college life on gifted students may be important to consider.

Acceleration of Gifted Students into College

Clearly, the literature concerned with the overall personality adjustment of gifted adolescents generally lacks rigorous attention to research methodology. However, given the consistency of findings in this literature, both across groups studied and measurement devices employed, the conclusions that academically talented adolescents are, by and large, well-adjusted seems a relatively safe one. The extent to which this level of adjustment is maintained upon early entrance to college is the next issue addressed in this review. For the most part, early entrants are removed from their familiar home surroundings and support system and placed in what can be an intimidating situation. Both the academic and social pressures can be more extreme at a college setting. Coupled with the stresses inherent in this situation, the early entrant may lack the experiential resources and coping abilities to make the transition to college life a smooth one.

The empirical studies since the mid-1940's which addressed themselves to the acceleration of adolescents into college (Fund for the Advancement of Education, 1957; Pollins, 1983; Robinson & Janos, 1985; Terman & Oden, 1947) indicated that few serious difficulties were encountered by the younger than average student in adjusting to college life. Other studies

by Bloom and Ward (1952), Eisenberg and George (1979), and Robinson and Robinson (1982), concerned themselves only with the academic outcomes of early entrance. The interested reader is referred to Pressey (1949) or Daurio (1979) for a review of the earlier literature pertinent to acceleration (e.g., Berg & Larsen, 1945; Keys, 1938; Odell, 1933; Sarbaugh, 1934).

While this literature is corroborate in its conclusions, it is lacking in several particulars. The deficits in this body of work range from lack of objective measurement to inadequate control groups to ignoring possible individual differences. Also of concern is the fact that no group of researchers has attended to an examination of the process of adjustment for early entrants.

Academic Performance

Before the description of the five major studies in this field, it is worth noting that three other reports (Bloom & Ward, 1952; Eisenberg & George, 1979; Robinson & Robinson, 1982) have dealt with purely academic outcomes of early entrance into college. Bloom and Ward (1952) compared the performance of their early entrants, who entered college at age 15, with national norms on the various advanced tests of the Graduate Record Examination. The mean percentile ranks of the University of Chicago early entrants ranged from the 67th percentile in literature to the 93rd percentile in Biology. Eisenberg and George (1979) tracked the academic performance, as measured by grade point average (GPA), of 59 early entrants to Johns Hopkins University. Thirty-six of these students were accelerated one year; 21 were accelerated two years; 2 were accelerated three years. Overall, Eisenberg and George's sample performed well academically. Although the differences were small, the average GPA's of

the early entrants over four semesters exceeded that of their classmates at Johns Hopkins. Robinson and Robinson (1982) also report significant academic achievement by early entrants to the University of Washington. While the typical undergraduate at this institution achieves a GPA of 3.0 of a possible 4.0, the average early entrant (ages range from 10-14) achieves a GPA of 3.56.

In addition, Pressey (1949) studied the academic and social outcomes of acceleration within the college years. Students who completed college in an average of three years tended to have higher GPA's than students who completed college studies in four and five years. The combined results of these four studies indicate that early entrants to college are able to perform at acceptable academic levels. The next group of studies deals specifically with social and emotional outcomes of early entrance to college. (see Table 2).

INSERT TABLE 2 ABOUT HERE

Socio-emotional Adjustment

Terman and Oden (1947)

As part of Terman's longitudinal studies of intellectually talented students, Terman and Oden (1947) reported their findings about the academic, social, and emotional adjustment of accelerated adolescents. In 1922 (prior to entrance into college), parents and teachers evaluated the social adjustment of the three groups (rapid accelerants, moderate accelerants, nonaccelerants) with a mixture of items from the School Information Blank and the Home Information Blank. They rated students' adjustment in such areas as amount of play with friends, sex of

companions, and relationships with other adolescents. All three groups were rated as having very satisfactory adjustment with no differences between groups for males or females. This result is reminiscent of most of the studies done on the socio-emotional adjustment of gifted adolescents (e.g., Tidwell, 1980; Werner & Bachtold, 1969). Ratings made by field workers and parents in 1928 again showed comparable levels of social adjustment for both accelerates and non-accelerates. However, a non-significant trend reflecting less than average adjustment was noted among the most accelerated students in that they received lower adjustment ratings from parents (Terman & Oden, 1947).

It was also found that while accelerated females engaged in as many extracurricular activities as non-accelerated females, highly accelerated males engaged in fewer high school extracurricular activities than did non-accelerated males. This trend reversed itself in college where no differences occurred among males but highly accelerated females were less concerned with extracurricular activities than other females. The reasons for these sex differences were not discussed satisfactorily. Further, while much mention is made regarding sex differences in the literature, there is no clear-cut explanation for the finding above. It is possible that males in high school were not yet mature enough to concern themselves with social activities and, hence, concentrated mainly on academics. In college, social and extracurricular activities may have become more important for males while females had found other avenues for social activities. Since evidence exists that there may be differential socio-emotional adjustment of gifted males and females (Tomlinson-Keasey & Smith-Winberry, 1983), it is important to attend to possible sex differences within the early entrants' literature. Further research in this important area is warranted.

The last group of findings reported by Terman and Oden deal with "nervous tendencies" of accelerants and non-accelerants as measured by the Home and School Information Blanks. Self-ratings in 1922 on these tendencies showed only small differences between accelerants and non-accelerants. Both male and female accelerants showed a tendency to have a lower incidence of nervous tendencies than non-accelerants. Parents ratings of nervous tendencies in 1928 replicated this self-report pattern.

In summary, Terman and Oden's (1947) results indicated that, prior to entrance into college, accelerated students displayed socio-emotional adjustment equivalent to that of non-accelerated students as rated by teachers and parents. After college, the accelerated students still closely resembled the non-accelerants in terms of adjustment and mental health. Thus, while not specifically addressing adjustment to college, Terman and Oden's research does provide some evidence that the adjustment to college of young, gifted students does not result in severe distress or increased attrition. However, a number of reasons exist why Terman and Oden's results, while providing good descriptions, are less than conclusive. First, some of the assessment techniques used, while permitting limited triangulation of findings, individually lack complete objectivity (e.g., parent and teacher ratings). Second, inadequate specification of research instruments (e.g., test of aptitude for marital adjustment) inhibits ready comprehension of the results derived from such instruments. Third, Terman and Oden's use of somewhat ambiguous criterion measures, such as preferred age of companions and extent of curricular activities as indices of socio-emotional adjustment, clouds the inference process.

More specifically, the extent to which either of these variables is

related to emotional well-being has never been fully established. Although counting the number of extracurricular activities in which a student engages as a measure of socio-emotional adjustment may have some face validity (e.g., a larger number of activities may indicate a more complete social support system), not all activities are equal. For example, in the Terman and Oden (1947), Fund (1957), Pressey (1949), and Pollins (1983) studies, presumably being editor of one's college newspaper is counted equally with being a member of the German club, even though the first activity connotes greater maturity and responsibility. Therefore, the simple frequency counts used in these studies is inadequate. At best, it is a crude index of emotional adjustment; at worst, it is misleading. Fourth, Terman and Oden's reports of "significant relationships" and "marked sex differences" are not accompanied by any reported statistical tests of significance. This area of neglect recalls several early studies reported in the first section of this review (e.g., Strang, 1956; Lessinger & Martinson, 1961).

Finally, as mentioned previously, this study does not deal specifically with adjustment to college. Since adequate adjustment was evident in 1928 (after college) we may only infer that few transition problems occurred. However, the latency between assessments in this landmark longitudinal study does not allow any conclusions about the process of adjustment throughout the college years. Again, this specific concern was of minor importance in Terman's 40 year study of genius. However, it remains an important issue on which we shall continue to focus.

Fund for the Advancement of Education (1957)

A second seminal work in the area of acceleration into college was sponsored by the Ford Foundation in 1957. This effort comprised the most

comprehensive study of early entrance into college. Across eleven different colleges, early entrants (86% were 16 years of age or younger) termed scholars, were compared to college freshmen of average age (18 years old), and of roughly equal academic aptitude.

The opinions of experienced college administrators and advisors were solicited at the end of the students' freshman and senior years as to the overall adjustment of the scholars and comparisons. In determining the level of adjustment, these professionals were requested to take the following factors into account: poise, leadership ability, study habits, gregariousness, personal appearance, emotional control, and adjustment to the opposite sex among others. Ratings at the end of the freshman year and for each of the additional three years of the study indicated that on this set of measures almost all of the scholars and comparisons evidenced either moderately good, good, or excellent adjustment. Although the comparisons perceived slightly more favorable ratings than did the scholars, the differences between groups were quite small. Advisors' ratings of students' adjustment were collected at the end of the senior year for both the 1951 and 1952 entering classes. The same trend for the comparisons to be rated as slightly better adjusted was evident in these evaluations but, again, these differences were slight. Over 90% of both groups were seen to evidence at least moderately good adjustment.

If adjustment problems were experienced by the scholars, they were evidenced only in their personal essays. Essays written by the 1951 and 1952 entering scholars at the end of their senior year were analyzed by a member of the College Entrance Examination Board. In these papers, both scholars and comparisons were asked whether they "encountered any difficulties in adjusting to the academic or social aspects of college life"

(Fund, 1957, p. 42) and "whether they had been able to overcome their social and emotional difficulties" (Fund, 1957, p. 45). Large percentages of both the 1951 and 1952 scholar groups reported encountering initial difficulties (81% and 63% respectively) while percentages for the comparison groups for this question were substantially lower (52% and 51% respectively). However, when asked if these difficulties had been overcome by the end of their senior years, the 1951 and 1952 scholars responded that they had been fully overcome (73% and 80%) or partly overcome (17% and 14%). Similar proportions were evident for the comparison groups. These figures appear to suggest that twice as many scholars (8%) left college not having overcome their social and emotional difficulties as comparisons (4%).

In 1951 for example, if 81% of scholars reported encountering initial difficulties and 90% of these students overcame or partly overcame their problems, 8% finished college still with emotional difficulties. For the 1951 comparison group, if 52% entered with problems and 90% of these students overcame or partly overcame them, only 5% left college experiencing emotional difficulties. Thus, a sizeable minority of the scholars (n=34) reported at the end of their senior year that residual emotional difficulties existed. These difficulties may have been severe, given their intractable nature.

The content analyses of the essays revealed that scholars not only reported many more adjustment problems than did the comparison students but that these problems were of a more serious nature. While comparisons most frequently mentioned problems with study habits and time management, the scholars reported problems dealing with social and emotional adjustment. Almost one-third of the scholars wrote of feeling

immature and shy and having difficulty making friends. Almost 25% mentioned experiencing problems in dealing with the opposite sex. Males reported having greater difficulties in this regard than did females. Many of these difficulties clearly point to the need for support services for these accelerated students as well as to sex differences manifested at the same age which are attributable to differential levels of social, emotional, and physical maturity.

Evaluation of the 1951 students by a team of psychiatrists resulted in the finding that scholars showed no more psychiatric difficulties than did the comparisons. Evaluations were based on available student records as well as interviews with some of the scholars. The proportions of cases of "simple adolescent maladjustment" and "emotional immaturity" were no greater for scholars than comparisons at any school. Also, the rate of visits to college counseling and medical services was no greater for scholars than comparisons at any of the eleven institutions.

Six schools reported attrition data. The attrition rate for scholars was greater than that of comparisons at four of these six schools. However, the scholar attrition rate was lower than that of the total student population at four of these six schools. An analysis of the reasons for leaving undertaken by the psychiatric team revealed that the majority of scholars left their original school, not because of emotional difficulties, but to transfer to colleges closer to their home or to enter the job market early. Others encountered financial difficulties requiring them to live at home in order to conserve resources. Although the psychiatric team concluded that attrition due to a student moving closer to home was not indicative of emotional adjustment problems, an alternative explanation seems possible. It could be argued that this move closer to home was a

reflection of a student's insecurity and/or lack of social support in the initial college setting. No such follow-up analysis was accomplished with comparison students who left college prematurely.

To recapitulate: the scholars at the eleven institutions appeared to experience a number of adjustment difficulties but generally overcome them in the course of their college stay. As evidenced by their own personal statements (the essays), these adjustment difficulties were substantial, especially in the early college years. In addition, males tended to experience relatively more college-years problems than females due to their "lesser developmental resources." It is worthy of note that Pressey's (1967) ten-year follow-up study of scholars from three institutions indicated few lasting problems. However, many male scholars recalled the difficulty they had in adjusting to college life and several stated that not enough support services were available to them in college.

While the most comprehensive study of early entrants' adjustment to college, the Fund study (1957) suffers from some of the same methodological deficiencies as does Terman and Oden's (1947) report. Similar to Terman and Oden, the Fund report mentioned no statistical tests in discussing group differences and similarities. Also, one measure of social and emotional well-being common to both the Terman and Oden (1947) and Fund (1957) studies is the extent of extracurricular activities engaged in by the students. Not only is the relationship between extracurricular activities and emotional well-being not clear, but no quantification of the amount of activities was reported in this study. Another problem with this study recalls that of Strang's (1956) report. Only one person analyzed and categorized the students' essay responses and thus no attention was paid to the possibility of bias and the necessity

of achieving high inter-rater reliability. A further difficulty with this research is the issue of comparison groups. While relatively close attention was paid to controlling for intellectual ability and environment by using students of equal ability from the same school, no attention was paid to controlling for age. Given the data from the Fund (1957) study, we do not know to what extent these accelerated students differed from similar aged, equally bright, non-accelerated students in terms of emotional adjustment. Only by having these data can we make some determination of the effects of acceleration. Finally, similar to Terman and Oden (1947), we gain little appreciation for the process of adjustment undergone by the accelerated students since most of the dependent measures were collected after the initial adjustment period had transpired. If no knowledge of the early process of transition is gained, structuring appropriate interventions for future early entrants to assist in their successful adjustment will be an exercise in guesswork.

Pollins (1983)

Although Pollins' (1983) study leads to similar interpretive problems as those of the Fund (1957) and Terman and Oden (1947), her comprehensive comparison of accelerants and non-accelerants prior to entry into college as well as her attention to same-age comparison groups are significant steps forward in this area of research. Data collected at age 13 for all participants included the CPI, the Strong-Campbell Interest Inventory (SCII), and the Study of Values (SOV). Five years later, a questionnaire was completed by all participants that included self-reports of academic accomplishment, high-school and college activities, liking for college, educational aspirations, and social and emotional development. On the average, the accelerated students were college seniors and the

non-accelerated students were college freshmen at the time of the second data collection.

Initial comparisons of the accelerants and non-accelerants via discriminant function analyses revealed no differences between these two groups on any of the dependent measures (CPI, SCII, SOV). Both groups appeared interpersonally effective as measured by the CPI, resembling the eighth grade and high school gifted samples of Lessinger and Martinson (1961). Similar to the gifted groups in Lessinger and Martinson (1961), Weiss, Haier, and Keating (1974), and the gifted female sample in Tomlinson-Keasey and Smith-Winberry (1983), these two gifted groups exhibited better adjustment relative to comparison samples of Lessinger and Martinson (1961).

Results from the SCII revealed that both groups scored highest on the Investigative theme and lowest on Artistic and Social themes. These results indicate a scholarly, scientifically oriented group of students with less interest in aesthetic and helping-oriented professions.

Finally, similar to the gifted high school and college samples of Kennedy (1960) and Warren and Heist (1960), Pollins' gifted students scored highest on the Theoretical scale of the SOV. Their two lowest SOV scale scores were Aesthetic and Religious. Thus, the results from the SOV are confirmatory of CPI data with these two groups of gifted students. Although Aesthetic values were also ranked as low by the Kennedy (1960) and Warren and Heist (1960) research groups, religious values were rated relatively high by these two samples. This difference may reflect the changes in religious values over time.

The questionnaire administered five years subsequent to administration of the personality measures revealed a number of differences

between the two groups. Non-accelerants took part in more extracurricular activities in high school and college, held more jobs in college, and expressed a greater liking for college than did the radical accelerants. Rapid accelerants exceeded non-accelerants in educational aspirations, feeling that they had used their educational opportunities well, feeling that the Study of Mathematically Precocious Youth (SMPY) program had helped them and perceiving that participation in the SMPY program had positively influenced their social and emotional development. Although a discriminant analysis successfully classified the two groups of gifted students on the basis of their responses to the questionnaire, the absolute differences between the groups on most of the above items were quite small.

Three major difficulties obscure the findings of Pollins (1983). Once again, the dependent variable, extracurricular activities, was assessed as a primary criterion measure. Pollins measured the number of activities and jobs the two samples engaged in without any justification for including this variable as an index of social and emotional adjustment. Also, as post-measures, she used subjective, self-report measures to determine the extent of emotional well-being. Clearly, given the reactivity and demand characteristics of these indices, their reliability is open to question. Finally, as with the Fund (1957) and Terman and Oden (1947) studies, Pollins' methodology provides no information about the process of adjustment to college undergone by the radical accelerants. No indices of change over time were collected and thus the mediational processes of initial adjustment are impossible to gauge. Since these accelerated students are only assessed in their senior year of college, we cannot assume their transition into college was smooth.

Robinson and Janos (1985)

The most recent study of accelerated students in college was reported by Robinson and Janos (1985). They collected data during the three-year period 1981-1984 and compared multiple measures of adjustment for four groups: Early Entrance Program (EEP) participants who had entered the University of Washington (UW) by age 14; qualified applicants who decided to stay in high school; National Merit Scholarship winners and semifinalists aged 17.5 to 18.5 years old; and, regular UW freshman who were matched by high school catchment area, sex, and scores on the Washington Pre-college Test (WPCT). Preliminary results reported from this evaluation effort suggest that the early entrants made a highly successful transition to the University of Washington.

Academically, the early entrants closely resembled the National Merit students. Grade point averages, units earned, and withdrawal rates were almost identical for these two groups over the four years. Psychologically, all groups were essentially equivalent when assessed with the MMPI and CPI. The MMPI was administered in 1981 and the CPI from 1982 to 1984 to all students. Socially, most friendships occurred between EEP participants in their early years of college study. As these students grew older and more confident, they tended to venture out and make friends of older students in different campus programs. In terms of classroom behavior, early entrants were described by professors as mature, well-prepared, and organized. They tended to speak up a little less in class (in contrast with the Keating et al. [1974] study) but visit professors more than did matched, same-class control students (next student of same sex on class roll).

Not only the conclusions but the methods of the Robinson and Janos

(1985) report are heartening. By using comparison groups of equivalent age and intellectual ability as well as comparisons of equal ability but normal age, they provide more valid contrasts than do the Terman and Oden (1947), Fund (1957), or Pollins (1983) studies. By collecting personality and academic data every year, they pay closer attention to possible changes in emotional and academic adjustment. What is still lacking empirically with this study is an in-depth analysis of the social and emotional adjustment process of these early entrants using repeated measures within their first year of study. Further, there may be several reasons why this type of data has not been collected at the University of Washington Early Entrance Program. First of all, the support services provided these particular students are very comprehensive (see Robinson and Robinson, 1982, for a description). Unlike most other institutions that accept early entrants, special arrangements are made for a student's optimal academic, social, and emotional adjustment. Since contact between students, program administrators, and counselors is so high, objective measures of the adjustment process, though potentially useful, may not be necessary. It is important to note that the EEP at UW is the exception in this regard. Karnes and Chauvin (1982) report, for instance, that 64% of institutions accepting early entrants have no specialized counseling services available for these students. Therefore, although the results of Robinson and Janos' (1985) work are encouraging, they cannot be generalized to apply to the general adjustment of early entrants in other institutions. Instead, they may be viewed as describing the optimal adjustment that could be hoped for with these early entrants. Further, although they pay attention to personality development during the college years, Robinson and Janos have yet to describe the early entrants'

process of transition. Finally, since Robinson and Janos' accelerated sample is self-selected, they may be seen as the most well-adjusted proper subset of gifted adolescents. Because of this, it should not be surprising that they manifest equivalent adjustment as do comparison groups.

Keating, Wiegand, and Fox (1974)

A major criticism of the Terman and Oden (1947), Fund (1957), and Pollins (1983) studies has been that they failed to focus on the nuts and bolts of the adjustment process. One study (Keating, Wiegand, & Fox, 1974), though not a study of full-time accelerated college students, does examine a specific behavior related to adjustment in college -- interaction between students and instructors. Still, it is important to remember that, while classroom behavior may be a manifestation of adjustment, it still does not speak to the process of adjustment. Keating et al. observed the teacher-student verbal interaction patterns of five mathematically advanced junior high school students enrolled in college algebra and trigonometry courses. Five other students taking these classes served as controls.

Frequency counts of teacher-initiated interactions showed no differences between the two groups. In terms of student-initiated interactions, the young students were slightly more verbally active than the regular college students, averaging 3.1 exchanges per day as opposed to 2.1 by the control students. This difference was not statistically significant, however. As an aside, all the mathematically advanced young students received A's in their courses and their teacher and fellow students reported that they had assimilated well into the courses.

The gifted students in this study also completed the Survey of Study Habits and Attitudes (SSHA), Form H, which Brown and Holtzman (1967) claim is a predictor of academic aptitude. Although Keating et al.

expected their sample to obtain high scores on this measure, scores obtained by the gifted students were quite low. However, analyses of the subscales and critical responses of the SSHA revealed that these students' poor attitudes toward school were a reflection of unsatisfactory past educational experiences. As a group, they tended to feel that their teachers did not make their subjects interesting and their grades were not a reflection of what they could really accomplish.

Although this is a study that does address a specific component of adjustment to college, the small number of students in their sample precludes definitive conclusions. This study does lend support, however, to Robinson and Janos' (1985) conclusion that very young college students are actively involved and responsible class participants.

Summary

The five studies discussed in this section represent the seminal attempts of various research groups to study a very complex phenomenon. While adequate attention to appropriate control groups and instrumentation was not always evident, the studies, in general, accomplish their purpose, which was to address in a global, longitudinal fashion the issue of socio-emotional adjustment difficulties of students accelerated into college. The researchers whose work is summarized in this section conclude that younger-than-average students have few adjustment difficulties in college and, for the most part, those problems are overcome with increasing maturity. An important issue to consider in this regard is that of the speed with which adjustment difficulties are ameliorated. While some problems faced by accelerated students may in fact be overcome as the student matures, it may be possible through preventive and remedial programs to decrease the impact of difficulties such as loneliness, poor

social skills, poor study habits, lack of social support, etc. Equally important to emphasize is the fact that the vast majority of these students were carefully and thoroughly screened by the institutions that admitted them and thus may not be representative in terms of emotional maturity of early entrants currently admitted for post-secondary study. In order to determine the real extent of socio-emotional difficulties with today's early entrants, a more rigorous research approach is required.

Discussion

This paper has attempted to summarize and synthesize two discrete areas of empirical endeavor--work dealing with the emotional adjustment of gifted adolescents and studies of the experience of rapid accelerants in college. We have concluded as have others (e.g., Daurio, 1979; Janos and Robinson, 1985) that academically advanced adolescents are certainly as well adjusted as their same-age peers and that rigorously screened rapid accelerants appear to adjust relatively well to the academic and social rigors of college life. It is equally clear that, in order to improve our knowledge in these two areas, numerous improvements must be made in the quality of research methodology. Future research should: use "multiple hurdle" criteria for giftedness, employ proper comparison groups, use assessment devices with established reliability and validity, move toward multivariate statistics for data analyses, refrain from describing samples with descriptive phrases from group personality profiles, focus on the process of adjustment, use geographically diverse samples, and follow-up the accelerated students who leave college prematurely.

We have not effected a theoretical critique of these two bodies of literature for several reasons. The knowledge base in the area of socio-emotional adjustment and development of gifted students is not

extensive. A theoretical framework for a review is therefore not appropriate. In addition, most of the studies reviewed were attempted for either applied or exploratory reasons. One is hard pressed in this literature to find a theoretical rationale for any study.

Given the lack of a theoretical model and the moderate quality of research in this specialty area of psychology, the most sound approach for future empirical work is one of rigorous, hypothesis testing and inductive theory building. We must continue to describe and explore both the emotional characteristics of academically precocious youth as well as the later adjustment to college and career of the subset of these brilliant students who accelerate through school and pursue university study at an early age.

Questions of interest include:

- Do female rapid accelerants make a better adjustment to college than male rapid accelerants? Results from the Fund (1957) study and Tomlinson-Keasey and Smith-Winberry (1983) as well as the vast adolescent development literature would suggest that this may be the case;
- Do students who have accelerated early in their school career make a smoother transition to college than students who skip one or more grades in high school? A wealth of anecdotal information as well as pilot interviews with rapid accelerants at Duke University would indicate that time of acceleration is a factor in ease of adaption to college; and,
- Does the degree of academic, social, and emotional support offered to accelerated students have a positive effect on

> their ability to adjust successfully to a new, stressful environment? Not only common sense but results from literature concerning adjustment of freshmen to college (e.g., Baker, McNeil, & Siryk, 1985) would suggest that a certain degree of support is helpful to the optimal adaptation of rapid accelerants. But, as Karnes and Chauvin (1982) point out, few institutions offer extensive assistance to early entrants.

An applied study focusing on these issues will serve not only to answer questions for college admissions and student affairs personnel but also to advance our comprehension of the factors necessary for the optimal development and nurturance of academically gifted rapid accelerants.

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Table 1. SUMMARY OF STUDIES DEALING WITH EMOTIONAL ADJUSTMENT OF GIFTED ADOLESCENTS

Study	Gifted Sample	Comparison Groups	Dependent Measures	Major Conclusions	Comments
Lessinger & Martinson (1961)	94 8th grade and 157 high school aged students.	82 8th grade non-gifted students; Gough's (1957) high school and adult norm groups.	CPI	8th grade gifted CPI profile resembles high school gifted and adult norm group profiles. Gifted students mature and well-adjusted.	3,7,10,12
Weiss, Haier, & Keating (1974)	32 male mathematically precocious students, average age = 12.9 years. X SAT-M=660 X SAT-V=546	Lessinger & Martinson's (1961)norms for 8th grade gifted, 8th grade nongifted, and high school gifted groups.	CPI	Gifted students profile resembles high school gifted profile; appears better adjusted and more mature than same-aged peers.	1,3,6,7
Hogan & Weiss (1974)	54 male Phi Beta Kappa (PBK) college students, X SAT-M=702 X-SAT-V=656	61 "Intellectually oriented" college students, 87 unselected "average" Johns Hopkins students.	CPI	Phi Beta Kappa students higher than "average" peers on Responsibility, Self-control, and Socialization scales; PBK not a creative group.	7,14
Tomlinson- Keasey & Smith- Winberry (1983)	63 male, 61 female college students identified as gifted while in elementary or high school, top 2.5% of school population.	27 male, 41 female college students never identified as gifted.	CPI	Male comparison group better adjusted than male gifted group. Female gifted group better adjusted than female comparison group.	7,11
Mason, Adams, & Blood (1966)	20 college honors students, X IQ=123 X GPA=2.8	10 former college honors students, X IQ=125 X GPA=2.8; 15 college non-honors students, X IQ=125 X GPA=2.8.	CPI, Adjective Check List, Who Are You?	Brighter students appear less mature than comparison groups and at odds with society.	1,5,6,7, 8,9,14

Study	Gifted Sample	Comparison Groups	Dependent Measures	Major Conclusions	Comments
Chambers & Dusseault (1972)	40 college students scoring in top 10% of students in province on SCAT.	Gough's (1969) college norm group.	CPI	Gifted students evidence poorer adjustment than norm group.	1,3,5,7,9,11,12
Kennedy (1960)	20 students (17 male, 3 female) X age=14.6 years, 20 students (45 male, 5 female), X age=16.6 years X IQ (n-40)=139.	none	MMPI, Kell-Hoeflin, Study of Values.	Gifted students no psychpathology, have strong theoretical orientation and mostly negative feelings about family.	1,2,7
Kennedy (1962)	100 students (79 male, 21 female) X age=17.4 years. X IQ=139.	none	MMPI	No evidence of psychopathology.	2,7
Warren & Heist (1960)	659 male, 259 female National Merit Scholarship students, IQ range from 130-150.	Male and female college freshman from University of California and Michigan State University.	Omnibus Personality Inventory, Study of Values.	Gifted students show less evidence of maladjustment than other college freshmen.	12
Werner & Bachtold (1969)	190 male, 177 female students ranging from 10-15 years old, IQ's ranged from 130-160.	Normative groups for Children's Personality Questionnaire (735 boys 741 girls) & High School Personality Questionnaire (179 boys, 155 girls).	Children's & High School Personality Questionnaire	Gifted boys differed from norms to a greater extent than gifted girls. Gifted students profiles resembled those of creative adults.	3,6,7,11
Karnes, Chauvin, & Trant (1985)	99 male, 100 female intellectually gifted high school students.	44 male, 132 female creatively talented high school students.	High School Personality Questionnaire.	Intellectually gifted students higher in creativity.	6,7,10,14

Study	Gifted Sample	Comparison Groups	Dependent Measures	Major Conclusions	Comments
Strang (1956)	241 junior high and high school students, X IQ=137	883 junior high and high school students, X IQ=95	Writing composition "How it feels to be growing up"	Same degree of self-acceptance between both groups. Gifted students more concerned with abstract issues.	8,12,13
Tidwell (1980)	1,593 high school students X IQ=137	Norm groups for Piers-Harris and Coopersmith scales.	Piers-Harris Self-Concept Scale, Coopersmith Self-Esteem Inventory, Locus of Control Questionnaire.	Evidence of good overall adjustment, internal locus of control.	2,3,12
Pandey (1977)	100 males, age range 17-18 from Moradabad, India.	100 males age range 17-18 from Moradabad, India.	Bell Adjustment Inventory	Bright boys have more problems in social adjustment than average boys.	4,6,8,9,10,11
Willings (1984)	24 Canadian students.	310 British and Canadian students.	Interview responses.	Creatively and intellectually gifted experience a number of emotional problems in the college years.	1,3,4,5,6,8

Key:
1-Small or unrepresentative sample.
2-No comparison group.
3-Comparison group not locally or temporally related to gifted sample.
4-Gifted sample not described adequately.
5-Criteria for giftedness liberal or confusing.
6-Inappropriate/incomplete statistical procedures.
7-Inappropriate interpretation of group test profiles.
8-Obscure or confusing dependent measures.
9-Questionable data interpretation.
10-No criteria for giftedness specified.
11-Inadequate/incomplete tabular information.
12-No statistical tests reported to verify group differences.
13-Lack of attention to rates reliability.
14-Comparison group too similar to gifted sample.

Table 2. SUMMARY OF STUDIES DEALING WITH ACCERATION INTO COLLEGE

Study	Accelerated Sample	Comparison Groups	Dependent Measures	Process of Assessment	Major Conclusions	Comments
Terman & Oden (1947)	36 male, 26 female students graduating high school below age of 15 yrs., 6 mos.	1) 332 students graduating high school between ages 15 yrs., 6 mos. and 16 yrs., 6 mos. 2)988 students graduating high school at or above age of 16 yrs., 6 mos.	1) Social adjustment ratings by parents, teachers, & field workers, 2) Extra-curricular activities, 3)Marital adjustment.	Assessed prior to entry into college, 6 yrs. after entry into college, 18 yrs. after entry into college.	Accelerants and nonaccelerants evidence essentially equivalent adjustment at all three measurement points. Marital adjustment also equivalent.	1,2,3,6,7
Fund for the Advancement of Education (1957)	1350 students (76% male, 24% female), 86% were age 16 or younger.	1373 students matched to accelerants for scholastic aptitude, two years older than accelerants.	1) Ratings of adjustment by college advisors 2) Psychiatric evaluations 3) Extracurricular activities, 4) Student essays.	Assessed at entry into college and prior to college graduation.	Accelerants experienced a number of adjustment difficulties early in college career but appeared to overcome them by time of graduation. Males experienced more problems than females.	2,3,4,5,6 7,10
Pollins (1983)	21 13 yr. old male students at least 3 yrs. ahead of same-age peers in educational placement.	21 13 yr. old male students matched to accelerants for scholastic aptitude.	1) CPI, 2) Strong-Campbell Interest Inventory, 3) Study of Values, 4) Attitude and activities questionnaire.	CPI, SCII, SOV given prior to college entry for accelerants, 9th grade for non-accelerants; questionnaire administered 5 yrs. later to both groups.	Both groups similar in level of adjustment, vocational interests, and values. Nonaccelerants more active in extracurricular pursuits and evidenced greater liking for college. Accelerants reported higher educational aspirations.	2,3,8,9, 11,12
Robinson & Janos (1985)	Early Entrance Program participants (college freshman at	1) Students qualified for EEP who chose to remain in high school, 2) National Merit	1) CPI, 2) MMPI, 3) Classroom behavior, 4) GPA.	Data collected yearly.	All groups evidenced essentially equivalent level of adjustment. EEP students less verbally active in class	3,10

Study	Accelerated Sample	Comparison Groups	Dependent Measures	Process of Assessment	Major Conclusions	Comments
	age 14 at the University of Washington.	Scholarship winners, University of Washington, 3) Regular University of Washington freshman matched for sex and aptitude scores with EEP students.			but were described by professors as mature and well-prepared. GPA similar to National Merit Scholars.	
Keating, Wiegand, & Fox (1974)	5 mathematically precocious junior high students enrolled in college algebra and trigonometry courses.	5 average-age college students in same classes.	1) Teacher initiated interactions, 2) Student initiated interactions, 3) Survey of Study Habits and Attitudes (SSHA).	Dated collected in one semester.	No difference in teacher-initiated interactions between groups. Young students slightly more verbally active. Young students scored very low on SSHA.	11

Key:

1-Inadequate specification of research instruments.
2-Ambiguous criterion measures utilized (e.g. extracurricular activities).
3-Lack of attention to the adjustment process.
4-Single-rater content analyses utilized.
5-Lack of follow-up analyses for accelerants leaving college prematurely.
6-No statistical tests reported to verify group differences or similarities.
7-Lack of same-age comparison group.
8-Lack of average-intelligence comparison group.
9-Reactive self-report criterion measures utilized.
10-Accelerated sample possibly not representative due to rigorous screening.
11-Small sample.
12-Inappropriate interpretation of group test profiles.